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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,697	09/29/2003	Jean-Yves Bonnefoy	1430-287	7814

23117 7590 09/10/2007

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EXAMINER	
BASI, NIRMAL SINGH	
ART UNIT	**PAPER NUMBER**
1646	
MAIL DATE	**DELIVERY MODE**
09/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/671,697	BONNEFOY ET AL.	
	Examiner	Art Unit	
	Nirmal S. Basi	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Amendment filed 6/19/07 has been entered. Applicant has amended claim 22 and added new claims 23-45. Claims 22- 45 will be examined as they pertain to the elected invention. The rejections below have been recast to address applicants amendments.

Claim Rejections - 35 USC § 112, 1st Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 22-39, 40-41, 44-45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amendment filed 6/19/07 introduced new matter into the claims, which is not supported by the original disclosure. The new matter pertains to the use of "**specific** for binding" or "**specific** binding in the claim.

The specification does not support the narrower limitations of the combination of elements currently claimed i.e. an isolated antibody or an isolated antibody fragment thereof which is "**specific** for binding to a polypeptide", "molecule which is **specific** for binding", or "**specific** binding" The use of the

word "**specific**" implies a genus of antibodies that is not supported by the specification.

There is no written description in the specification for the combination of the limitations disclosed above. If Applicant feels Examiner's assessment of the new matter is in error then he/she must clearly disclose where in the specification specific support for the combination of elements currently claimed can be found. In particular applicant must point out the use of the word "specific" as it pertains to the claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 22-39, 40-41, 44-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22, 23, 26, 29, 31, 34, 35, 36, 37, 40, and 44 are rejected as indefinite because it is not clear which antibodies would be considered "**specific**" for binding to a polypeptide comprising SEQ ID NO:9 or a polypeptide comprising SEQ ID NO:9 wherein Thr residue number 130 and Gly residue number 358 shown in SEQ ID NO:9 are replaced by Ile and Asp residues, respectively." The term "specific" for binding to a polypeptide is not defined in the specification so as to allow the metes and bounds of the claims to be determined. Antibody specificity is measured in terms of its Km or Kd for an antigenic epitope. The region of a protein molecule to which an antibody can bind is defined as an

antigenic epitope". The specification does not define "specific" for binding to a polypeptide in terms of Km or Kd. Therefore, an antibody that binds an epitope on two separate proteins, A and B, be it the same epitope or different, the antibody would be considered specific for binding to polypeptide A as well as specific for binding to polypeptide B. Therefore, in the absence of any association or dissociation constants, Km and Kd, by which to define specific binding of an antibody to a protein, the term "specific" binding to a polypeptide is limited by the epitope to which it binds. In the rejections that follow if an antibody can bind a polypeptide it is considered specific binding.

Claims 24-25, 27-28, 30, 32-33, 41 and 45 are rejected for depending on an indefinite base claim and failing to resolve the issues raised above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 22-24, 26, 27, 29-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Wilson et al (US Patent 6,911,530, which is a divisional of 09/051,843 filed 10/23/96).

Wilson discloses a method of making an antibody and an antibody that binds to NR4 polypeptide. The NR4 polypeptide, i.e. interleukin receptor alpha chain (SEQ ID NO:4 and 2) of Wilson have 98.9% and 72.9% query match respectively, with the polypeptide of SEQ ID NO:9 of instant application (IL-13 receptor). The receptor SEQ ID NO:4 contains the Thr/Gly and Ile/Asp amino acid replacements. The NR4 polypeptide is collectively used to refer to the polypeptide of SEQ ID NO:4 and 2.

Sequence comparison of SEQ ID NOs:4 and 2 (Wilson patent) with SEQ ID NO:9 (instant application) are shown below:

```
RESULT 4
US-09-688-286D-4
; Sequence 4, Application US/09688286D
; Patent No. 6911530
; GENERAL INFORMATION:
;  APPLICANT: Willson, Tracey
;  APPLICANT:  Nicola , Nicos
;  APPLICANT:  Hilton, Douglas
;  APPLICANT:  Metcalf, Donald
;  APPLICANT:  Zhang , Jian
;  TITLE OF INVENTION: A novel haemopoietin receptor and genetic sequences
encoding same
;  FILE REFERENCE: 23199-215
;  CURRENT APPLICATION NUMBER: US/09/688,286D
;  CURRENT FILING DATE:  2003-07-10
;  PRIOR APPLICATION NUMBER: AU PN6135
;  PRIOR FILING DATE: 1995-10-23
;  PRIOR APPLICATION NUMBER: AU PN7276
;  PRIOR FILING DATE: 1995-12-22
;  PRIOR APPLICATION NUMBER: AU PP2208
;  PRIOR FILING DATE: 1996-09-09
;  NUMBER OF SEQ ID NOS: 12
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
;   LENGTH: 426
;   TYPE: PRT
;   ORGANISM: human
US-09-688-286D-4

  Query Match             98.9%;  Score 2296.5;  DB 2;  Length 426;
  Best Local Similarity   99.3%;  Pred. No. 2.2e-217;
  Matches  424;  Conservative    0;  Mismatches    2;  Indels    1;  Gaps    1;

Qy          1 MEWPARLCGLWALLLCAGGGGGGGGAAPTETQPPVTNLSVSVENLCTVIWTWNPPEGASS 60
              |||||||||||||||||||||||| ||||||||||||||||||||||||||||||||||
Db          1 MEWPARLCGLWALLLCAGGGGGGGG-APTETQPPVTNLSVSVENLCTVIWTWNPPEGASS 59
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Qy          61 NCSLWYFSHFGDKQDKKIAPETRRSIEVPLNERICLQVGSQCSTNESEKPSILVEKCISP 120
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          60 NCSLWYFSHFGDKQDKKIAPETRRSIEVPLNERICLQVGSQCSTNESEKPSILVEKCISP 119

Qy         121 PEGDPESAVIELQCIWHNLSYMKCSWLPGRNTSPDTNYTLYYWHRSLEKIHQCENIFREG 180
               ||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         120 PEGDPESAVTELQCIWHNLSYMKCSWLPGRNTSPDTNYTLYYWHRSLEKIHQCENIFREG 179

Qy         181 QYFGCSFDLTKVKDSSFEQHSVQIMVKDNAGKIKPSFNIVPLTSRVKPDPPHIKNLSFHN 240
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         180 QYFGCSFDLTKVKDSSFEQHSVQIMVKDNAGKIKPSFNIVPLTSRVKPDPPHIKNLSFHN 239

Qy         241 DDLYVQWENPQNFISRCLFYEVEVNNSQTETHNVFYVQEAKCENPEFERNVENTSCFMVP 300
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         240 DDLYVQWENPQNFISRCLFYEVEVNNSQTETHNVFYVQEAKCENPEFERNVENTSCFMVP 299

Qy         301 GVLPDTLNTVRIRVKTNKLCYEDDKLWSNWSQEMSIGKKRNSTLYITMLLIVPVIVADAI 360
               |||||||||||||||||||||||||||||||||||||||||||||||||||||||||| ||
Db         300 GVLPDTLNTVRIRVKTNKLCYEDDKLWSNWSQEMSIGKKRNSTLYITMLLIVPVIVAGAI 359

Qy         361 IVLLLYLKRLKIIIFPPIPDPGKIFKEMFGDQNDDTLHWKKYDIYEKQTKEETDSVVLIE 420
               ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         360 IVLLLYLKRLKIIIFPPIPDPGKIFKEMFGDQNDDTLHWKKYDIYEKQTKEETDSVVLIE 419

Qy         421 NLKKASQ 427
               |||||||
Db         420 NLKKASQ 426
```

US-09-688-286D-2
; Sequence 2, Application US/09688286D
; Patent No. 6911530
; GENERAL INFORMATION:
; APPLICANT: Willson, Tracey
; APPLICANT: Nicola , Nicos
; APPLICANT: Hilton, Douglas
; APPLICANT: Metcalf, Donald
; APPLICANT: Zhang , Jian
; TITLE OF INVENTION: A novel haemopoietin receptor and genetic sequences encoding same
; FILE REFERENCE: 23199-215
; CURRENT APPLICATION NUMBER: US/09/688,286D
; CURRENT FILING DATE: 2003-07-10
; PRIOR APPLICATION NUMBER: AU PN6135
; PRIOR FILING DATE: 1995-10-23
; PRIOR APPLICATION NUMBER: AU PN7276
; PRIOR FILING DATE: 1995-12-22
; PRIOR APPLICATION NUMBER: AU PP2208
; PRIOR FILING DATE: 1996-09-09
; NUMBER OF SEQ ID NOS: 12
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 424
; TYPE: PRT
; ORGANISM: Mus musculus
US-09-688-286D-2

Query Match 72.9%; Score 1692.5; DB 2; Length 424;
Best Local Similarity 74.6%; Pred. No. 6.6e-158;
Matches 318; Conservative 40; Mismatches 65; Indels 3; Gaps 2;

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Qy           1 MEWPARLCGLWALLLCAGGGGGGGGAAPTETQPPVTNLSVSVENLCTVIWTWNPPEGASS 60
```

```
                 |  ||  |   |  |||        |  ||  ||  |||||||||||||||:||||:||||||
Db          1 MARPALLGELLVLLLWT--ATVGQVAAATEVQPPVTNLSVSVENLCTIIWTWSPPEGASP 58

Qy         61 NCSLWYFSHFGDKQDKKIAPETRRSIEVPLNERICLQVGSQCSTNESEKPSILVEKCISP 120
               ||:|  |||||  |:|||||||||  |   |:||:|:|||||||||| |||||||  ||:|||||
Db         59 NCTLRYFSHFDDQQDKKIAPETHRKEELPLDEKICLQVGSQCSANESEKPSPLVKKCISP 118

Qy        121 PEGDPESAVIELQCIWHNLSYMKCSWLPGRNTSPDTNYTLYYWHRSLEKIHQCENIFREG 180
               |||||||||  ||:|||||||||||||||||||||||:||||||:  ||||   |||||:|||
Db        119 PEGDPESAVTELKCIWHNLSYMKCSWLPGRNTSPDTHYTLYYWYSSLEKSRQCENIYREG 178

Qy        181 QYFGCSFDLTKVKDSSFEQHSVQIMVKDNAGKIKPSFNIVPLTSRVKPDPPHIKNLSFHN 240
               |:  |||  ||||  :  |||  :||||||||||||:||  ||  |||  |||||||||:|   |
Db        179 QHIACSFKLTKV-EPSFEHQNVQIMVKDNAGKIRPSCKIVSLTSYVKPDPPHIKHLLLKN 237

Qy        241 DDLYVQWENPQNFISRCLFYEVEVNNSQTETHNVFYVQEAKCENPEFERNVENTSCFMVP 300
                 |  |||:|||||  ||||  |||||||:||:  ||:   |:|  ||:|  |  :||:|  ||||  :|
Db        238 GALLVQWKNPQNFRSRCLTYEVEVNNTQTDRHNILEVEEDKCQNSESDRNMEGTSCFQLP 297

Qy        301 GVLPDTLNTVRIRVKTNKLCYEDDKLWSNWSQEMSIGKKRNSTLYITMLLIVPVIVADAI 360
               |||  |  :  |||:||||||||::|:||||:||:   ||||::|||  |  ||||  :||  ||  |:
Db        298 GVLADAVYTVRVRVKTNKLCFDDNKLWSDWSEAQSIGKEQNSTFYTTMLLTIPVFVAVAV 357

Qy        361 IVLLLYLKRLKIIIFPPIPDPGKIFKEMFGDQNDDTLHWKKYDIYEKQTKEETDSVVLIE 420
               |:||  ||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db        358 IILLFYLKRLKIIIFPPIPDPGKIFKEMFGDQNDDTLHWKKYDIYEKQSKEETDSVVLIE 417

Qy        421 NLKKAS 426
               |||||:
Db        418 NLKKAA 423
```

Wilson antibodies to NR4 (IL-13 receptor alpha) and its derivatives or its ligands (e.g. IL-13). Wilson further discloses such antibodies may be monoclonal or polyclonal and may be selected from naturally occurring antibodies to NR4 or may be specifically raised to NR4 or derivatives thereof. Antibodies to NR4 may be monoclonal or polyclonal (column 13). Alternatively, fragments of antibodies may be used such as Fab fragments, synthetic antibody that includes fragments and hybrid antibodies (i.e. single chain Fv) (column 14. Chemical coupling of fluorescent compounds such as fluorecin and rhodamine to antibodies (column 16).

Further, Wilson claims antibodies specifically:
CLAIMS:
1. An isolated antibody generated using an IL-13 receptor .alpha.-

chain polypeptide comprising all or part of SEQ ID NO: 4, which antibody binds to an IL-13 receptor .alpha.-chain.

2. An isolated antibody which binds specifically to an IL-13 receptor .alpha.-chain consisting of the sequence of SEQ ID NO: 4.

Therefore, because of the high homology between NR4 and SEQ ID NO:9 of instant application many of the antibodies disclosed by Wilson will specifically bind to the polypeptide of SEQ ID NO:9 of instant application. The disclosure of meets the limitation of claim 22-24, 26, 27, 29-35, absent evidence to the contrary.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 22-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aman (see IDS, J. Biol. Chem., Vol. 271, No.46, November 15, pages 29265-29270, 1996) in view of Queen et al (5,693,762), Takatsu et al (US Patent 5,453,491) and Ladner (US Patent 4,946,778).

Aman discloses a polypeptide (IL-13 receptor alpha chain) which has 99.5% query match with the polypeptide of SEQ ID NO:9.

Sequence comparison of the Aman polypeptide and SEQ ID NO:9 of instant application is disclosed below:

```
RESULT 1
I13R1_HUMAN
ID   I13R1_HUMAN    STANDARD;      PRT;   427 AA.
AC   P78552; O95646; Q99656;
DT   01-NOV-1997, integrated into UniProtKB/Swiss-Prot.
DT   01-MAY-1997, sequence version 1.
;

  Query Match             99.5%;  Score 2311;  DB 1;  Length 427;
  Best Local Similarity   99.5%;  Pred. No. 6.2e-168;
  Matches  425;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 MEWPARLCGLWALLLCAGGGGGGGGAAPTETQPPVTNLSVSVENLCTVIWTWNPPEGASS 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MEWPARLCGLWALLLCAGGGGGGGGAAPTETQPPVTNLSVSVENLCTVIWTWNPPEGASS 60

Qy         61 NCSLWYFSHFGDKQDKKIAPETRRSIEVPLNERICLQVGSQCSTNESEKPSILVEKCISP 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 NCSLWYFSHFGDKQDKKIAPETRRSIEVPLNERICLQVGSQCSTNESEKPSILVEKCISP 120

Qy        121 PEGDPESAVIELQCIWHNLSYMKCSWLPGRNTSPDTNYTLYYWHRSLEKIHQCENIFREG 180
              ||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 PEGDPESAVTELQCIWHNLSYMKCSWLPGRNTSPDTNYTLYYWHRSLEKIHQCENIFREG 180

Qy        181 QYFGCSFDLTKVKDSSFEQHSVQIMVKDNAGKIKPSFNIVPLTSRVKPDPPHIKNLSFHN 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 QYFGCSFDLTKVKDSSFEQHSVQIMVKDNAGKIKPSFNIVPLTSRVKPDPPHIKNLSFHN 240

Qy        241 DDLYVQWENPQNFISRCLFYEVEVNNSQTETHNVFYVQEAKCENPEFERNVENTSCFMVP 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 DDLYVQWENPQNFISRCLFYEVEVNNSQTETHNVFYVQEAKCENPEFERNVENTSCFMVP 300

Qy        301 GVLPDTLNTVRIRVKTNKLCYEDDKLWSNWSQEMSIGKKRNSTLYITMLLIVPVIVADAI 360
              |||||||||||||||||||||||||||||||||||||||||||||||||||||||| ||
Db        301 GVLPDTLNTVRIRVKTNKLCYEDDKLWSNWSQEMSIGKKRNSTLYITMLLIVPVIVAGAI 360

Qy        361 IVLLLYLKRLKIIIFPPIPDPGKIFKEMFGDQNDDTLHWKKYDIYEKQTKEETDSVVLIE 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        361 IVLLLYLKRLKIIIFPPIPDPGKIFKEMFGDQNDDTLHWKKYDIYEKQTKEETDSVVLIE 420
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```
Qy        421 NLKKASQ 427
              |||||||
Db        421 NLKKASQ 427
```

Aman does not teach isolated antibodies that bind IL-13 receptor alpha chain, but does disclose that the development of said antibodies may be useful in determining the binding of IL-4Ralpha and IL-13Ralpha (see page 29269 and 29265). _ Queen (5,693,762), teaches the production of humanized antibodies by using such molecules as IL-2 receptor (column 16), Fab fragments, $(Fab')_2$ and single chain antibodies (column 17). Antibodies in combination with pharmaceutical agents (column 19). Ladner discloses humanized antibodies are important because they bind to the same antigen as the original antibodies, but are less immunogenic when injected into humans.

Ladner (US Patent 4,946,778) discloses the production of single chain antibodies.

Takatsu discloses production of antibodies to IL-5. The production of antibodies to polypeptides is routine in the art and Takatsu is but one of the many examples available in the prior art. Takatsu discloses the production antibodies, e.g. those that inhibited the binding of IL-5 to IL-5R.

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to use the polypeptide disclosed by Aman and use the method of Queen, Ladner and Takatsu to raise monoclonal, polyclonal, humanized antibodies and suspend them in pharmaceutically active agents and use them to bind to IL13 alpha receptor disclosed by Aman. It would have been prima facie obvious to a person of ordinary skill in the art at the time

the invention was made to use the polypeptide disclosed by Aman and use the method of Queen, Ladner and Takatsu to raise Fab fragments, $(Fab')_2$ and single chain antibodies (Fv) and suspend them in pharmaceutically active agents and use them to bind to IL13 alpha receptor disclosed by Aman. The ordinary artisan would have, been motivated to produce said antibody to study the interaction of IL4R alpha with IL-13R alpha. Antibodies to IL receptors have been routinely produced in the art with success.

The ordinary artisan would have expected success at producing said antibody because antibody production is a well defined art, using well-established techniques. Many of the antibodies produced by using the polypeptide of Aman would be expected to bind to the polypeptide of SEQ ID NO:9 of instant application due to the close homology of the two polypeptides, absent evidence to the contrary.

6. Claims 22-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilton (see Proc. Natl. Acad. Sci. USA. Vol. 93, pages 497-501, January 1996) in view of Aman (IDS, J. Biol. Chem., Vol. 271, No.46, November 15, pages 29265-29270, 1996) and Takatsu et al (US Patent 5,453,491), Queen et al (5,693,762) and Ladner (US Patent 4,946,778).

Hilton discloses a polypeptide (Il-13 receptor alpha chain), which has 72.9% query match with the polypeptide of SEQ ID NO:9.

Sequence comparison of the Hilton polypeptide and SEQ ID NO:9 of instant application is disclosed below:

```
RESULT 9
I13R1_MOUSE
```

```
ID   I13R1_MOUSE    STANDARD;      PRT;   424 AA.
AC   O09030; Q7TT27;
DT   01-NOV-1997, integrated into UniProtKB/Swiss-Prot.
DT   01-JUL-1997, séquence version 1.

  Query Match             72.9%;  Score 1692.5;  DB 1;  Length 424;
  Best Local Similarity   74.6%;  Pred. No. 1.1e-120;
  Matches  318;  Conservative   40;  Mismatches   65;  Indels    3;  Gaps    2;

Qy          1 MEWPARLCGLWALLLCAGGGGGGGGAAPTETQPPVTNLSVSVENLCTVIWTWNPPEGASS 60
              |  ||  |  |  |||       |  || || |||||||||||||||:||||:||||||
Db          1 MARPALLGELLVLLLWT--ATVGQVAAATEVQPPVTNLSVSVENLCTIIWTWSPPEGASP 58

Qy         61 NCSLWYFSHFGDKQDKKIAPETRRSIEVPLNERICLQVGSQCSTNESEKPSILVEKCISP 120
              ||:|  |||||  |:|||||||||  |  |:||:|:||||||||||  |||||||  ||:|||||
Db         59 NCTLRYFSHFDDQQDKKIAPETHRKEELPLDEKICLQVGSQCSANESEKPSPLVKKCISP 118

Qy        121 PEGDPESAVIELQCIWHNLSYMKCSWLPGRNTSPDTNYTLYYWHRSLEKIHQCENIFREG 180
              |||||||||  ||:|||||||||||||||||||||||:||||||: ||||  |||||:|||
Db        119 PEGDPESAVTELKCIWHNLSYMKCSWLPGRNTSPDTHYTLYYWYSSLEKSRQCENIYREG 178

Qy        181 QYFGCSFDLTKVKDSSFEQHSVQIMVKDNAGKIKPSFNIVPLTSRVKPDPPHIKNLSFHN 240
              |:  |||  ||||  :  |||  :||||||||||||:||  ||  |||  |||||||||:|   |
Db        179 QHIACSFKLTKV-EPSFEHQNVQIMVKDNAGKIRPSCKIVSLTSYVKPDPPHIKHLLLKN 237

Qy        241 DDLYVQWENPQNFISRCLFYEVEVNNSQTETHNVFYVQEAKCENPEFERNVENTSCFMVP 300
                | |||:|||||  ||||  |||||||:||:  ||:   |:|  ||:|  | :||:|  ||||  :|
Db        238 GALLVQWKNPQNFRSRCLTYEVEVNNTQTDRHNILEVEEDKCQNSESDRNMEGTSCFQLP 297

Qy        301 GVLPDTLNTVRIRVKTNKLCYEDDKLWSNWSQEMSIGKKRNSTLYITMLLIVPVIVADAI 360
              |||  |  :  |||:|||||||||::|:||||:||:   ||||::|||  |  ||||  :||  ||  |:
Db        298 GVLADAVYTVRVRVKTNKLCFDDNKLWSDWSEAQSIGKEQNSTFYTTMLLTIPVFVAVAV 357

Qy        361 IVLLLYLKRLKIIIFPPIPDPGKIFKEMFGDQNDDTLHWKKYDIYEKQTKEETDSVVLIE 420
              |:||  ||||||||||||||||||||||||||||||||||||||||||:||||||||||
Db        358 IILLFYLKRLKIIIFPPIPDPGKIFKEMFGDQNDDTLHWKKYDIYEKQSKEETDSVVLIE 417

Qy        421 NLKKAS 426
              |||||:
Db        418 NLKKAA 423
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Hilton discloses a NR4 polypeptide (IL-13 receptor) which binds IL-13 and together with IL-4R-alpha can form a functional receptor for IL-13 (see Fig 1, Abstract and Discussion). Hilton does not disclose isolated antibodies that bind (IL-13 receptor alpha chain)

Aman discloses that isolated antibodies that bind IL-13 receptor alpha may be useful in determining the binding of IL-4Ralpha and IL-13Ralpha (see page 29269 and 29265).

The teachings of Ladner, Queen and Takatsu are disclosed above.

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to take the polypeptide disclosed by Hilton and by using the methods of Queen, Takatsu and Ladner raise antibodies that bind to IL13 alpha receptor disclosed by Hilton. The ordinary artisan would have been motivated to produce said antibody to study the interaction of IL4R alpha with IL-13R alpha as disclosed by Aman. Antibodies to IL receptors have been routinely produced in the art with success.

The ordinary artisan would have expected success at producing said antibody because antibody production is a well defined art using well established techniques. Many of the antibodies produced by using the polypeptide of Hilton would also be expected to bind to the polypeptide of SEQ ID NO:9 of instant application due to the close homology of the two polypeptides, absent evidence to the contrary.

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to use the polypeptide disclosed by Hilton and use the method of Aman, Queen, Ladner and Takatsu to raise monoclonal, polyclonal, humanized and antibodies and suspend them in pharmaceutically active agents and use them to bind to IL13 alpha receptor disclosed by Hilton. It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to use the polypeptide disclosed by Aman and use the method of Queen, Ladner and Takatsu to raise Fab fragments, $(Fab')_2$ and single chain antibodies (Fv) and suspend them in pharmaceutically active agents and use them to bind to IL13 alpha receptor disclosed by Aman. The ordinary

artisan would have been motivated to produce said antibody to study the interaction of IL4R alpha with IL-13R alpha. The ordinary artisan would have expected success at producing said antibody because antibody production is a well defined art using well-established techniques. Many of the antibodies produced by using the polypeptide of Hilton would be expected to bind to the polypeptide of SEQ ID NO:9 of instant application due to the close homology of the two polypeptides, absent evidence to the contrary.

7. Claims 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson (US Patent 6,911,530) in view of Queen et al (5,693,762).

Wilson discloses a method of making various antibodies that bind to NR4 polypeptide. The teachings of Wilson are disclosed below. The NR4 polypeptide (SEQ ID NO:4 and 2) of Wilson has 98.9% and 72.9% query match respectively, with the polypeptide of SEQ ID NO:9 of instant application (IL-13 receptor).

Wilson does not disclose humanized antibodies.

Queen (5,693,762), teaches the production of humanized antibodies by using such molecules as IL-2 receptor (column 16). Fab fragments, $(Fab')_2$ and single chain antibodies (column 17). Antibodies in combination with pharmaceutical agents (column 19). Ladner further discloses humanized antibodies are important because they bind to the same antigen as the original antibodies, but are less immunogenic when injected into humans.

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to take the polypeptide disclosed by Wilson and by using the method of Queen to raise antibodies that bind to the NR4 (IL13 alpha receptor) The ordinary artisan would have been motivated to produce said antibody to study the interaction of IL4R alpha with IL-13R alpha as well as to use in human immunotherapy because humanized antibodies are important because they bind to the same antigen as the original antibodies, but are less immunogenic when injected into humans.

The ordinary artisan would have expected success at producing said antibody because humanized antibody production is a well defined art using well-established techniques. Many of the antibodies produced by using the polypeptide of Wilson would be expected to bind to the polypeptide of SEQ ID NO:9 of instant application due to the close homology of the two polypeptides, absent evidence to the contrary.

8. Claims 38-39 and 42-43 are allowable.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Advisory

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nirmal S. Basi whose telephone number is 571-272-0868. The examiner can normally be reached on 9:00 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol can be reached on 571-272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nirmal S. Basi
Art Unit 1646

CHRISTINE J. SAOUD
PRIMARY EXAMINER